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VOGEL, KURT

<120> NOVEL LIPASE GENES

<130> 0184.310US

<140> US 09/905,666

<141> 2001-07-13

<150> 60/217,954

<151> 2000-07-13

<150> 60/300,378

<151> 2001-06-21

<160> 111

<170> PatentIn Ver. 2.1

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<210> 11
<211> 648
<212> DNA
<213> *Bacillus* sp.

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B
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<210> 13
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<212> DNA
<213> *Bacillus* sp.

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<213> *Bacillus* sp.

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639

<210> 16

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<212> DNA

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<210> 17

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<212> DNA

<213> *Bacillus* sp.

<400> 17

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31
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<211> 639

<212> DNA

<213> *Bacillus* sp.

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<210> 19

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tctgtctata gtcagccga ttgattgtc gtcaacagcc ttcgcgtt aactggcgca 540
agaaatgtcc tgatccacgg cggtggccat atcggtctat taacctcaag ccaagtggaaa 600
gggtatatta aagaaggact gAACGGCGGG ggccctaaata caaattaa 648

<210> 20
<211> 642
<212> DNA
<213> *Bacillus* sp.

<400> 20
atgaaatttg taaaaagaag gatcattgca ctgttaacaa ttttgatgct gtctgttaca 60
tcgctgttg cggtgcacc gtcagccaaa gccgctgaac acaatccagt cgttatggtt 120
cacggatttg gaggggcattc attcaatttt gccccgatata agagctatct cgta tctcag 180
ggctggtcgc gggacaagct gtatgcagtt gatttcaggg acaagacagg aaat aaccgc 240
aacaatggtc cgcgtctatc taaattcgtc aaagatgtgt tagacaaaac gggt gccaaa 300
aaagtagata ttgtggctca tagtatggc gggcgaaca cgctatacta tattaaagat 360
ctagatggcg gcgataaaat tggaaacgtt gtccacaattt gcgagcaaa cggactcggt 420
tcaaggcagag cattaccagg cacagatcca aatcaaaaaa ttctttacac atccgtctac 480
aagctcagcc gatctcattt tgcgtcaacag tctctctcg ttaattggct gcaagaaaaca 540
gtccaaatcc atggcgttgg acatatcggt ctattaacct caagccaaatg caaaggatat 600
attaaagaag gactgaacgg cgggggacta aatacaattt aa 642

<210> 21
<211> 544
<212> DNA
<213> Artificial Sequence
B1
cont
<220>
<223> Description of Artificial Sequence: Synthetic nucleotide sequence

<400> 21
tgaacacaat ccagttgtta tggttcacgg tat tggaggg gcat cattca attttgcggg 60
aattaagagc tatctcgat ctcagggtg gtccggggc aagctgtatg cggttgattt 120
ttgggacaag acagggacga attataacaa tggcccggtt ttatcggtt ttgtgaaaaa 180
ggtatttagat gaaacgggtg cgaaaaaaat ggatattgtc gtcacagca tggcgccgc 240
taacacgctt tactacataa aaatcttgg cggcggaaat aaatgttggaa acgt cgtaac 300
gcttggccgc acgaaccgtt cgacgacaag caaggcgctt ccggaaacag atccaaatca 360
aaagattttt tacacatcca ttacacatcc ttacacatcc ttacacatcc ttacacatcc 420
aaaatttagac ggtgctaaaaa atgttcaat tcatggcggtt gggcacattt gtttattgtat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggggac tcaa tacgaa 540
ttga 544

<210> 22
<211> 544

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic nucleotide sequence

<400> 22

tgaacacaat	ccagttgtta	tggcacgg	tatggaggg	gcatcattca	attttgcggg	60
aattaagagc	tatctcgat	ctcaggctg	gtcacgggc	aagctgtatg	cgggtgattt	120
ttgggacaag	acagggacga	attataacaa	tggcccgta	ttatcttagat	tcgtcaaaga	180
tgtctagac	aaaacgggtg	cgaaaaaagt	ggatattgtc	gctcacagca	tggggggcgc	240
gaacacactt	tactacataa	aaaatctgga	cggcgaaat	aaaattgaaa	acgtcgtaac	300
gcttggccgc	gcgaaccgtt	cgacgacaag	caaggcgctt	ccggaaacag	atccaaatca	360
aaagattta	tacacatcca	ttacagcg	tgccgatatg	attgtcatga	attacttata	420
aaaatttagac	gggctaaaa	atgttcaat	tcatggcg	gggcacattt	gtttattgat	480
gaacagccaa	gtcaacagcc	tgattaaaga	aggactgaac	ggcggggac	tcaatacgaa	540
ttga						544

<210> 23
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic nucleotide sequence

<400> 23

tgaacacaat	ccagttgtta	tggcacgg	tatggaggg	gcatcattca	attttgcggg	60
aattaagagc	tatctcgat	ctcaggctg	gtcacgggc	aagctgtatg	cggtgattt	120
ttgggacagg	acagggacga	attataacaa	tggcccgta	ttatctacat	ttgtgaaaaa	180
ggtttagat	gaaaccgtg	cgaaaaaagt	ggacattgtc	gctcacagca	tgggtggcgc	240
gaacacactt	tactacataa	aaaatctgga	cggcgaaat	aaaattgaaa	acgtcgtaac	300
gcttggccgc	gcgaaccgtt	tgacgacaag	caaggcgctt	ccggaaacag	atccaaatca	360
aaagattta	tacacatcca	ttacggcg	tgccgatatg	attgtcatga	attacttata	420
aaaatttagac	ggtgcataaa	acgttcaat	ccatggcg	gggcacattt	gtttattgat	480
gaacagccaa	gtcaacagcc	tgattaaaga	aggactgaac	ggcggggac	tgaataaaaa	540
ttga						544

<210> 24
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic nucleotide sequence

<400> 24

tgaacacaat	ccagttgtta	tggcacgg	tatcgaggg	gcatcattca	attttgcggg	60
aattaagagc	tatctcgat	ctcaggctg	gtcacgggc	aagctgtatg	cgggtgattt	120
ttgggacaag	acagggacga	attataacaa	tggcccgta	ttatctacat	ttgtgaaaaa	180
ggtttagac	gaaaccgtg	cgaaaaaagt	ggatattgtc	gctcacagca	tggggggcgc	240
gaacacactt	tactacataa	aaaatctgga	cggcgaaat	aaaattgaaa	acgtcgtaac	300
gcttggccgc	gcgaaccgtt	cgacgacaag	caaggcgctt	ccggaaacag	atccaaatca	360
aaagattta	tacacatcca	ttacggcg	tgccgatatg	attgtcatga	attacttata	420
aaaatttagac	ggtgcataaa	acgttcaat	tcatggcg	gggcacattt	gtttattgat	480
gaacagccaa	gtcaacagcc	tgattaaaga	aggactgaac	ggcggggac	tcaatacgaa	540

ttga

544

<210> 25
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 25
tgaacacaat ccagttgtta tggcacgg tattggaggg gcatcattca attttgcg 60
aattaagagc tatctcgat ctcaggctg gtccggggc aagctgtatg cggttgattt 120
ttggacaag acagggacga attataacaa tggcccgta ttatcacat ttgtgc 180
ggttttagac gaaacgggtg cgaaaaaagt ggaatttgc gtcacagca tggcg 240
gaacacactt tactacataa aaaaatttgc tggcgtaat aaaattgaaa acgtcgtc 300
cattggtgc gcaaacggac t cgttcaag cagagcatta ccaggcacag atccaaatca 360
aaaaatttctt tacacatccg tctatagtc agcagatctt attgtcgta acagtctctc 420
tcgtttaatt ggcgcaagaa acgtccaaat ccatggcggtt ggaatatacg gtctattaa 480
ctcaagccaa gtcaaaggat attaaaga aggacttaac ggcggggcc acaaatacgaa 540
ttga 544

<210> 26
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 26
tgaacacaat ccagttgtta tggcacgg tattcgagga gtttcataca attttgcg 60
aattaagagc tatctcgat ctccaggctg gtcacggggc aagctgtatg cggttgattt 120
ttggacaag acagggacga attataacaa tggcccgta ttatcacat ttgtgc 180
ggttttagac gaaaccgggtg cgaaaaaagt ggaatttgc gtcacagca tgggtggc 240
gaacacactt tactacataa aaaaatttgc cggcgaaat aaaaattgaaa acgtcgtac 300
gcttggcgcc gcaaccgggtt gacgacaag cagggcgctt ccggaaacag atccaaatca 360
aaagatttta tacacatcca ttacagcag tggcgatatg attgtcatga attacttac 420
aaaatttagac ggtgctaaaa acgtccaaat tcatggcggtt gggcacattt gtttattgat 480
gaacagccaa gtcaaaggat attaaaga aggactgaac ggcggaggcc taaatacgaa 540
ttga 544

B
Cont

<210> 27
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 27
tgaacacaat ccagttgtta tggcacgg tattggaggg gcatcattca gttttgcgg 60
aattaagagc tatctcgat ctcaggctg gtccggggc aagctgtatc cggttgattt 120
ttggacaag acagggacga attataacaa tggcccgta ttatcacat ttgtgc 180
ggtttggac gaaacgggtg cgaaaaaagt ggaatttgc gtcacagta tgggtggc 240

gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgt cgtaac 300
gcttggccgc gcgaaaccgtt t gacgacaag caaggcgctt ccgggtactg atcc caacca 360
aaagatctt tacacatccg tttacagtag tgctgatatg attgttatga attacttatac 420
aaaatttagac gggctaaaaa atgttcaaat tcatggcggtt gggcacattg gttt attgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc taaa tacaaa 540
ttga 544

<210> 28
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 28
tgaacacaat ccagttgtta t gggtcacgg tattggaggg gcatcattca gttt tgccgg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cggtgat 120
ttgggacaag acagggacga attataacaa tggcccggtt ttatcacatg ttgtgcaaaa 180
ggttttggac gaaacgggtg cgaaaaaaagt ggatattgtc gctcacagta tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaaccgtt t gacgacaag caaggcgctt ccgggtactg atcccaacca 360
aaagatctt tacacatccg tttacagtag tgctgatatg attgttatga attacttatac 420
aaaatttagac gggctaaaaa atgttcaaat tcatggcggtt gggcacattg gttt attgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc taaa tacaaa 540
ttga 544

<210> 29
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 29
tgaacacaat ccagttgtta t gggtcacgg tattcgagga gcttcataca gttt tgccgg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cggtgat 120
ttgggacaag acagggacga attataacaa tggcccggtt ttatcacatg ttgtgcaaaa 180
ggtttttagac gaaacgggtg cgaaaaaaagt ggatattgtc gctcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaaccgtt t gacgacaag caaggcgctt ccgggaacag atcccaacca 360
aaagatctt tacacatccg tttacagtag tgccgatatg attgtcatga attacttatac 420
aaaatttagac gggctaaaaa atgttcaaat tcatgggttc gggcacatcg gccttctgtt 480
cagcagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc aaaa tacaaa 540
ttga 544

<210> 30
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 30
tgaacacaat ccagttgtta tggcacgg ttcgagga gtttcataca gtttgcggg 60
aattaagagc tatctcgat ctcaggctg gtacggggc aagctgtatg cggtgattt 120
ttggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggttttagac gaaacgggtg cgaaaaaagt ggatattgtc gtcacagca tggggggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaccgtt t gacgacaag caaggcgctt ccggaaactg atcccaacca 360
aaagatctt tacacatccg tttacagtag tgctgatatg attgttatga attacttatac 420
aaaatttagac gggctaaaa a tggtcaaat tcatggcggtt gggcacactg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc acaataaaaa 540
ttga 544

<210> 31
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 31
tgaacacaat ccagttgtta tggcacgg tattggagga gcatcataca attttgcggg 60
aattaagagc tatctcgat ctcaggctg gtacggggc aagctgtata cggtgattt 120
ttggacaag acagggacaa attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggttttagac gaaacgggtg cgaaaaaagt ggatattgtc gtcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaatcgct t tgtaacagg caaggcgctt ccggaaacag atcccaatca 360
aaagattttg tacacatccg tttacagtag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa a cgttcaaat tcatggcggtt gggcacatg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc tgaataaaaa 540
ttga 544

<210> 32
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

B1
cont
<400> 32
tgaacacaat ccagtcgtta tggcacgg tattggaggg gcatcattca attttgcggg 60
aatttaggagc tatctcgat ctcaggctg gtacggggc aagctgtatg cggtgattt 120
ttggacagg acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggttttagat gaaacccgtg cgaaaaaagt ggacattgtc gtcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaccgtt t gacgacaag caaggcgctt ccggaaacag atcccaatca 360
aaagattttt tacacatcca tttacagtag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggggctaaaa a tggtcaaat ccatggcggtt ggaacatcg gccttctgt 480
cagcagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc tcaatacgaa 540
ttga 544

<210> 33
<211> 544
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 33

tgaacacaat ccagttgtta t gggtcacgg t atcgagggg gcatcattca attttgcggg 60
aattaggagc tatctcgtat ctcagggtg gt cacggggc aag ctgtatg cggtgat 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggtttttagac gaaaccgggtg cgaaaaaaagt ggacattgtc gct cacagca tggcgccgc 240
taacacgtt tactacataa aaaaatctgga cg gcggaaat aaaattgaaa acgt cgtaac 300
gcttggccgc acgaaccgtt t gacgacaag ca gggcgctt ccgggaacag atccaaatca 360
aaagatttt tacacatcca tttacagcag tgccgatatg attgtcatga attacttata 420
aaaacttagac ggtgctaaaa a cgttcaa at tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggggac tcaa tacgaa 540
ttga 544

<210> 34

<211> 544

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 34

tgaacacaat ccagttgtta t gggtcacgg t attgagggg gcatcattca attttgcggg 60
aattaagagc tatctcgtat ctcagggtg gt cgccggac aag ccgtatg cggtgat 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggtttttagac aaaacgggtg cgaaaaaaagt ggatattgtc gct cacagca tggggggcgc 240
gaacacactt tactacataa aaaaatctgga cg gcggaaat aaaattgaaa acgt cgtaac 300
gcttggccgc gcgaaaccgtt t gacgacaag ca agggcgctt ccgggaacag atccaaatca 360
aaagatttt tacacatcca tttacagcag tgccgatatg attgtcatga attacttata 420
aaaatttagac ggtgctaaaa a cgttcaa at tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggggac tcaa tacgaa 540
ttga 544

<210> 35

<211> 544

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 35

tgaacacaat ccagttgtta t gggtcacgg t attgagggg gcatcattca attttgcggg 60
aattaagagc tatctcgtgt ctcagggtg gc cgccggac aag ctgtatg cagt tgat 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggtttttagac gaaacgggtg cgaaaaaaagt ggatattgtc gct cacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cg gcggaaat aaaattgaaa gcgt cgtaac 300
acttggccgc gcgaaatcgat tt gtaacagg caa ggcgtt ccgggaactg atccaaatca 360
aaagatttt tacacatcca tttacagcag tgccgatatg attgtcatga attacttata 420
aaaatttagac ggtgctaaaa a cgttcaa at tcatggcggtc gga catatcg gcct tctgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggggcc acaa tacaaa 540
ttga 544

31
CONT

<210> 36
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 36
tgaacacaat ccagttgtta tggttcacgg tatcgagggg gcatcattca gtttgcggg 60
aattaggagc tatctcgat ctcagggctg gccgcgggac aagctgtatg cggttgattt 120
ttgggacaag acagggcaca attataacaa tggcccgta ttatcacatg ttgtgc 180
ggtatttagat gaaaccggtg cgaaaaaaagt ggaattttgc gcccacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaagttgaaa acgtcgtgac 300
gcttggcggc gccaaccgtt tgacgacagg caaggcgctt ccgggtactg atcccaatca 360
aaagattttt tacacatccg ttacacagc tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa a cgttcaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacaggc tgattaaaga aggactgaac ggcggaggcc acaataaaaa 540
ttga 544

<210> 37
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 37
tgaacacaat ccagttgtta tggttcacgg tatcgagggg gcatcattca gtttgcggg 60
aattaggagc tatctcgat ctcagggctg gccgcgggac aagctgtatg cggttgattt 120
ttgggacaag acagggcaca attataacaa tggcccgta ttatcacatg ttgtgc 180
ggtatttagat gaaaccggtg cgaaaaaaagt ggaattttgc gcccacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaagttgaaa acgtcgtgac 300
gcttggcggc gccaaccgtt tgacgacagg caaggcgctt ccgggtactg atcccaatca 360
aaagattttt tacacatccg ttacacagc tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa a cgttcaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacaggc tgattaaaga aggactgaac ggcggaggcc acaataaaaa 540
ttga 544

31
32
33

<210> 38
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 38
tgaacacaat ccagttgtta tggttcacgg tatcgggggg gcatcattca gtttgcggg 60
aattaggagc tatctcgat ctcagggctg gccgcgggac aagctgtatg cggttgattt 120
ttgggacaag acagggcaca attataacaa tggcccgta ttatcacatg ttgtgc 180
ggtatttagat gaaaccggtg cgaaaaaaagt ggaattttgc gcccacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaat aaagttgaaa acgtcgtgac 300
gcttggcggc gccaaccgtt tgacgacagg caaggcgctt ccgggtactg atcccaatca 360

aaagattta tacacatccg tttacagcacatgcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa acgttcaaat tcatggcggtt gggcacatg gtttattgat 480
gaacagccaa gtcaacaggc tgattaaaga aggactgaac ggcggaggcc acaaataaaaa 540
ttga 544

<210> 39
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 39
tgaacacaat ccagttgtta tggttcacgg tattggaggg acatcattca attttgccgg 60
aattaggagc tatctcgat cccagggtg gcgcggggac aagctgtatg cggttgattt 120
ttgggacaag acagggacaa attataacaa tggcccggtt ttttcacatg ttgtgcaaaa 180
ggtatttagat gaaacccggtg cgaaaaaaagt ggatattgtc gcccacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctggc cgccggaaat aaaggtaaaa acgtcgtgac 300
gcttggccgc gccaaccgtt t gacgacagg caaggcgctt ccgggtactg atccaaatca 360
aaagattta tacacatccg tttacagcacatgcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa acgttcaaat tcatggcggtt gggcacatg gtttattgat 480
gaacagccaa gtcaacaggc tgattaaaga aggactgaac ggcggaggcc acaaataaaaa 540
ttga 544

<210> 40
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 40
tgaacacaat ccagttgtta tggttcacgg tattggaggg acatcattca attttgccgg 60
aattaagagc tatctcgat ctcagggtg gt cacggggac aagctgtatg cggttgattt 120
ttgggacaag acagggacga attataacaa tggcccggtt ttttcacatg ttgtgcaaaa 180
ggtttttagac gaaacccggtg cgaaaaaaagt ggatattgtc gctcacagca tgggcggcgc 240
caacacgtt tactacataa aaaaatctggc cgccggaaat aaaggtaaaa acgtcgtgac 300
gcttggccgc gcgaaaccgtt t gacgacaaag caaggcgctt ccgggaacag atccaaatca 360
aaagattta tacacatcca tttacagcacatgcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa acgttcaaat tcatggcggtt gggcacatg gtttattgat 480
gaacagccaa gtcaacagcc tgattaaaga aggactgaac ggcggggggcc acaaataaaaa 540
ttga 544

<210> 41
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 41
tgaacacaat ccagttgtta tggttcacgg tattggaggg acatcattca attttgccgg 60

aattaagagc tatctcgat ctcagggctg gt cgccggac aag ctgtatg cagt tgattt 120
tagtgacaaa acaggcacga attataacaa tggcccgta ttatcacatg ttgt gcaaaa 180
ggtttagac gaaacgggtg c gaaaaaagt ggatattgtc gct cacagca tggggggcgc 240
gaacacactt tactacataa a aatctgga tggccgtaat aaaa ttgaaa acgtcgtaac 300
acttggccgc gcgaaaccgtt t gacgacaag ca aggccgtt ccgggtactg atcccaacca 360
aaagatctt tacacatcca t ttacagcag tgccgatatg gtt gtcatga attacttatac 420
aaaatttagac ggggctaaaa a tggtaaat tcatgggtc gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggc gggggcc acaatacgaa 540
ttga 544

<210> 42
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 42
taaacacaat ccagttgtta tggttcacgg tattggaggg gcatcataca attt tgccgg 60
aataaagagc tatctcgat ctcagggctg gt cgccggac aag ctgtatg cagt tgattt 120
tagtgacaaag acaggcacga attataacaa tggcccgta ttatcacatg ttgt gcaaaa 180
ggtttagac gaaacgggtg c gaaaaaagt ggatattgtc gct cacagca tggggggcgc 240
gaacacactt tactacataa a aatctgga cggccgtaat aaa attgaaa acgt cgtaac 300
acttggccgc gcgaaaccgtt t gacgacaag ca aggccgtt ccgggaacag atccaaatca 360
aaagatttt tacacatcca ttacagcag tgccgatatg attgtcatga attacttatac 420
aaaacttagac ggtgctaaaa a cgttcaaat tcatgggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggc gggggat taaatacgaa 540
ttga 544

<210> 43
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 43
tgaacacaat ccagttgtta tggttcacgg tattggaggg gcatcattca attt tgccgg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aag ctgtatg cggttgattt 120
ttgggacaaag accgggacga attataacaa tggcccgta ttatcacatg ttgt gcaaaa 180
ggcttagac gaaacgggtg c gaaaaaagt ggatattgtc gct cacagca tgggtggcgc 240
gaacacactt tactacataa a aatctgga cggccgaaat aaa attgaaa acgtcgtaac 300
gcttggccgc gcgaaaccgtt t gacgacaag ca aggccgtt ccgggaacag atccaaatca 360
aaagatttt tacacatcca ttacagcag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa a cgttcaaat ccatgggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggc gggggcc agaatacgaa 540
ttga 544

<210> 44
<211> 544
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 44

tgaacacaat ccagttgtta tggttcacgg tatcgagggg gcatcattca atttgcggg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cggttgattt 120
ttgggacagg acagggacga attataacaa tggcccgta ttatcacatg ttgtgaaaaa 180
ggtattagat gaaacccggtg cgaaaaaaagt ggatattgtc gctcacagca tggggggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaaat aaaattgaaa acgtcgtcac 300
acttggccgc gcgaaccgtt cgacgacaag caaggcgctt ccggaaacag atccaaatca 360
aaagattta tacacatcca ttacagcag tggcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaaa acgttcaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga agggctgaac ggcggaggcc agaatacgaa 540
ttga 544

<210> 45

<211> 544

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 45

tgaacacaat ccagttgtta tggttcacgg tattggagggg gcatcattca atttgcggg 60
aattaagagc tatctcgat ctcagggctg gt cgccgggc aagctgtatg cggttgattt 120
ttgggacagg acagggacga attataacaa tggcccgta ttatcacatg ttgtgaaaaa 180
ggtttttagac gaaacccggtg cgaaaaaaagt ggatattgtc gctcacagca tggggggcgc 240
gaacacactt tactacataa aaatctgga cggcgaaaat aaaattgaaa acgtcgtcac 300
acttggccgc gcgaaccgtt cgacgacaag caaggcgctt ccggaaacag atccaaatca 360
aaagattta tacacatcca ttacagcag tggcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaaa acgttcaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga agggcttaac ggcgggggccc acaatacgaa 540
ttga 544

<210> 46

<211> 544

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 46

tgaacacaat ccagtcgtta tggttcacgg tattggagggg gcatcattca atttgcggg 60
aataaaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cggttgattt 120
ttgggacagg acagggacga attataacaa tggcccgta ttatcacatg ttgtgaaaaa 180
ggtttttagac gaaacccggtg cgaaaaaaagt ggatattgtc gctcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcgaaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaccgtt cgacgacaag caaggcgctt ccggaaacag atccaaatca 360
aaagattta tacacatcca ttacagcag tggcgatatg attgtcatga attgttatac 420
aaaatttagac ggtgctaaaaa acgttcaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgggggccc agaatacgaa 540
ttga 544

<210> 47

gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggaggcc aaaa tacgaa 540
ttga 544

<210> 50
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 50
tgaacacaat ccagttgtta tggttcacgg tattggaggg gcatcattca attttgcggg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cagttgattt 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcgctt ttgtgaaaaa 180
ggtatttagat gaaacgggtg cgaaaaaaagt ggatattgtc gctcacagca tgggcggcgc 240
taacacgctt tactacataa aaaatctgga tggcggtat aaaattgaaa acgtcgtcac 300
acttggccgc gcgaaaccgtt cgacgacaag caagggcgtt ccgggaactg atcccaacca 360
aaagattttt tacacatcca ttacagcag tggcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaaa acgttcaaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcggaggcc aaaa tacgaa 540
ttga 544

<210> 51
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 51
tgaacacaat ccagttgtta tggttcacgg tattggaggg gcatcattca attttgcggg 60
aattaagagc tatctcgat ctcagggctg gt cacggggc aagctgtatg cggttgattt 120
caaggacaag acagggacaa attataacaa tggcccgta ttatcagat ttgtgaaaaa 180
ggtatttagat gaaaccgggtg cgaaaaaaagt ggatattgtc gctcacagca tgggcggcgc 240
taacacgctt tactacataa aaaatctgga cggcgaaat aaaattgaaa acgtcgtaac 300
gcttggccgc gcgaaaccgtt cgacgacaag caagggcgtt ccgggtactg atcccaacca 360
aaagattttt tacacatcca ttacagcag tggcgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaaa acgttcaaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggcttaac ggcgggggcc agaatacgaa 540
ttga 544

<210> 52
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 52
taaacacaat ccagttgtta tggttcacgg tattggaggg gcatcattca attttgcggg 60
aattaagagc tatctcgat ctcagggctg gtcggggac gagctgtatg cggttgattt 120
ttgggacgag acagggacga attataacaa tggcccgta ttatcagat ttgtgcaaaa 180

ggtttttagac gaaaccggtg cgaaaaaaagt ggatattgtc gctcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgt cgtaac 300
gcttggcgc gcgaaaccgtt cgacgacaag caaggcgctt ccgggtacag atccaaatca 360
aaagatttta tacacatcca ttacagcag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa atgttcaaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgaggcc aaaat acgaa 540
ttga 544

<210> 53
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 53
tgaacacaat ccagttgtta tggttcacgg tatcggaggg gcatcattca attttgcggg 60
aattaagagc tatctcgat ctcaaggctg gtgcggggac aagctgtatg cggttgattt 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggtttttagac gaaacgggtg cgaaaaaaagt ggatattgtc gctcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgt cgtaac 300
acttggcgc gcgaaaccgtt cgacgacaag caaggcgctt ccgggaacag atccaaatca 360
aaagatttta tacacatcca ttacagcag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa acgttcaaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgaggcc aaaat acaaaa 540
ttga 544

<210> 54
<211> 544
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 54
tgaacacaat ccagttgtta tggttcacgg tatcggaggg gcatcattca attttgcggg 60
aattaagagc tatctcgat ctcaaggctg gtcacggggc aagctgtatg cggttgattt 120
ttgggacaag acagggacga attataacaa tggcccgta ttatcacatg ttgtgcaaaa 180
ggtttttagac gaaacgggtg cgaaaaaaagt ggatattgtc gctcacagca tgggtggcgc 240
gaacacactt tactacataa aaaaatctgga cggcggaaat aaaattgaaa acgt cgtaac 300
acttggcgc gcgaaaccgtt cgacgacaag caaggcgctt ccgggaacag atccaaatca 360
aaagatttta tacacatcca ttacagcag tgccgatatg attgtcatga attacttatac 420
aaaatttagac ggtgctaaaa atgttcaaat tcatggcggtt gggcacattg gtttattgat 480
gaacagccaa gtcaacagcc t gattaaaga aggactgaac ggcgaggcc aaaat acaaaa 540
ttga 544

<210> 55
<211> 212
<212> PRT
<213> *Bacillus pumilus*

<400> 55
Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
 20 25 30
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
 35 40 45
 Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60
 Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 65 70 75 80
 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 85 90 95
 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110
 Asn Thr Pro Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 115 120 125
 Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
 130 135 140
 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 145 150 155 160
 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 165 170 175
 Ala Lys Asn Ala Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 180 185 190
 Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205
 Gln Asn Thr Asn
 210

<210> 56

<211> 212

<212> PRT

<213> *Bacillus subtilis*

<400> 56

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
 1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
 20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 65 70 75 80

Asn	Asn	Gly	Pro	Val	Leu	Pro	Arg	Phe	Val	Gln	Lys	Val	Leu	Asp	Glu				
														85	90	95			
Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala				
																100	105	110	
Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Val	Ala				
																115	120	125	
Asn	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Leu	Thr	Thr	Gly	Lys	Ala				
																130	135	140	
Leu	Pro	Gly	Thr	Asp	Pro	Asn	Gln	Lys	Ile	Leu	Tyr	Thr	Ser	Ile	Tyr				
																145	150	155	160
Ser	Ser	Ala	Asp	Met	Ile	Val	Ile	Asn	Tyr	Leu	Ser	Arg	Leu	Asp	Gly				
																165	170	175	
Ala	Arg	Asn	Val	Gln	Ile	His	Gly	Val	Gly	His	Ile	Gly	Leu	Leu	Tyr				
																180	185	190	
Ser	Ser	Gln	Val	Asn	Ser	Leu	Ile	Lys	Glu	Gly	Leu	Asn	Gly	Gly	Gly				
																195	200	205	
Leu	Asn	Thr	Asn																
																210			

<210> 57
 <211> 212
 <212> PRT
 <213> *Bacillus megaterium*

<400> 57																			
Met	Lys	Phe	Val	Lys	Arg	Arg	Ile	Ile	Ala	Leu	Val	Thr	Ile	Leu	Val				
1																5	10	15	
Leu	Ser	Val	Thr	Ser	Leu	Phe	Ala	Met	Gln	Pro	Ser	Ala	Lys	Ala	Ala				
																20	25	30	
Asp	Thr	Ile	Gln	Leu	Leu	Trp	Phe	Thr	Gly	Ile	Gly	Gly	Ala	Ser	Tyr				
																35	40	45	
Asn	Phe	Ala	Gly	Ile	Lys	Ser	Tyr	Leu	Val	Ser	Gln	Gly	Trp	Ser	Arg				
																50	55	60	
Gly	Lys	Leu	Tyr	Ala	Val	Asp	Phe	Trp	Asp	Lys	Thr	Gly	Thr	Asn	Tyr				
																65	70	75	80
Asn	Asn	Gly	Pro	Val	Leu	Ser	Arg	Phe	Val	Gln	Lys	Val	Leu	Asp	Glu				
																85	90	95	
Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala				
																100	105	110	
Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Ile	Glu				
																115	120	125	
Asn	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Leu	Thr	Thr	Ser	Lys	Ala				
																130	135	140	

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

His Asn Thr Asn
210

<210> 58

<211> 212

<212> PRT

<213> *Bacillus lenthus*

<400> 58

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

Leu Asn Thr Asn
210

<210> 59
<211> 212
<212> PRT
<213> *Bacillus circulans*

<400> 59
Met Lys Phe Ile Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

Leu Asn Thr Asn
210

<210> 60
<211> 212
<212> PRT
<213> *Bacillus azotoformans*

<400> 60
Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val

1

5

10

15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
 20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
 35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

Gly Glu Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
 130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 145 150 155 160

Ser Ser Ala Asn Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205

Leu Asp Thr Asn
 210

<210> 61

<211> 212

<212> PRT

<213> *Bacillus firmus*

<400> 61

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val
 1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
 20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
 35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr

65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Ala Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

His Asn Thr Asn
210

<210> 62

<211> 212

<212> PRT

<213> *Bacillus badius*

<400> 62

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Val
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Met Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala

130

135

140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
180 185 190

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

His Asn Thr Asn
210

<210> 63

<211> 212

<212> PRT

<213> *Bacillus* sp.

<400> 63

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Lys Asp Lys Thr Gly Thr Asn Tyr
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Gly Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Arg Leu Asp Gly
165 170 175

Ala Arg Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
180 185 190

Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly

195

200

205

Leu Asn Thr Asn
210

<210> 64
<211> 212
<212> PRT
<213> *Bacillus* sp.

<220>
<221> MOD_RES
<222> (73)
<223> Variable amino acid

<400> 64
Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Xaa Asp Lys Thr Gly Asn Asn Arg
65 70 75 80

Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val Leu Asp Lys
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp Lys Ile Glu
115 120 125

Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser Ser Arg Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
145 150 155 160

Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg Leu Ile Gly
165 170 175

Ala Arg Asn Ile Leu Ile His Gly Val Gly His Ile Gly Leu Leu Thr
180 185 190

Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

Leu Asn Thr Asn
210

<210> 65

<211> 215
<212> PRT
<213> *Bacillus* sp.

<400> 65
Met Lys Val Ile Phe Val Lys Lys Arg Ser Leu Gln Ile Leu Val Ala
1 5 10 15

Leu Ala Leu Val Leu Gly Ser Ile Ala Phe Ile Gln Pro Lys Glu Ala
20 25 30

Lys Ala Ala Glu His Asn Pro Val Val Met Val His Gly Met Gly Gly
35 40 45

Ala Ser Tyr Asn Phe Ala Ser Ile Lys Arg Tyr Leu Val Ser Gln Gly
50 55 60

Trp Asp Gln Asn Gln Leu Phe Ala Ile Asp Phe Ile Asp Lys Thr Gly
65 70 75 80

Asn Asn Leu Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val
85 90 95

Leu Ala Lys Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met
100 105 110

Gly Gly Ala Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp
115 120 125

Lys Ile Glu Asn Val Val Thr Leu Gly Gly Ala Asn Gly Leu Val Ser
130 135 140

Leu Arg Ala Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr
145 150 155 160

Ser Val Tyr Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg
165 170 175

Leu Ile Gly Ala Arg Asn Val Leu Ile His Gly Val Gly His Ile Gly
180 185 190

Leu Leu Thr Ser Ser Gln Val Lys Gly Tyr Val Lys Glu Gly Leu Asn
195 200 205

Gly Gly Gly Gln Asn Thr Asn
210 215

<210> 66
<211> 215
<212> PRT
<213> *Bacillus* sp.

<400> 66
Met Lys Val Ile Phe Val Lys Lys Arg Ser Leu Gln Ile Leu Val Val
1 5 10 15

Leu Ala Leu Val Met Gly Ser Met Ala Phe Ile Gln Pro Lys Glu Ile
20 25 30

Arg Ala Ala Glu His Asn Pro Val Val Met Val His Gly Met Gly Gly

35	40	45
Ala Ser Tyr Asn Phe Ala Ser Ile Lys Ser Tyr Leu Val Ser Gln Gly		
50	55	60
Trp Asp Arg Asn Gln Leu Phe Ala Ile Asp Phe Ile Asp Lys Thr Gly		
65	70	75
Asn Asn Arg Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val		
85	90	95
Leu Ala Lys Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met		
100	105	110
Gly Gly Ala Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp		
115	120	125
Lys Ile Glu Asn Val Val Thr Leu Gly Gly Ala Asn Gly Leu Val Ser		
130	135	140
Leu Arg Ala Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr		
145	150	155
Ser Val Tyr Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg		
165	170	175
Leu Ile Gly Ala Arg Asn Val Leu Ile His Gly Val Gly His Ile Gly		
180	185	190
Leu Leu Ala Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn		
195	200	205
Gly Gly Gly Gln Asn Thr Asn		
210	215	
<210> 67		
<211> 215		
<212> PRT		
<213> <i>Bacillus</i> sp.		
<400> 67		
Met Lys Val Ile Phe Val Lys Lys Arg Ser Leu Gln Ile Leu Ile Ala		
1	5	10
		15
Leu Ala Leu Val Ile Gly Ser Met Ala Phe Ile Gln Pro Lys Glu Ala		
20	25	30
Lys Ala Ala Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly		
35	40	45
Ala Ser Tyr Asn Phe Phe Ser Ile Lys Ser Tyr Leu Ala Thr Gln Gly		
50	55	60
Trp Asp Arg Asn Gln Leu Tyr Ala Ile Asp Phe Ile Asp Lys Thr Gly		
65	70	75
Asn Asn Arg Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val		
85	90	95
Leu Asp Lys Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met		

100 105 110

Gly Gly Ala Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp
115 120 125

Lys Ile Glu Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser
130 135 140

Ser Arg Ala Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr
145 150 155 160

Ser Val Tyr Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Gln
165 170 175

Phe Asn Trp Arg Lys Lys His Pro Asp Pro Gly Val Gly His Ile Gly
180 185 190

Leu Leu Thr Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn
195 200 205

Gly Gly Gly Leu Asn Thr Asn
210 215

<210> 68

<211> 212

<212> PRT

<213> *Bacillus* sp.

<400> 68

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Arg Asp Lys Thr Gly Asn Asn Leu
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Val Thr Gly Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Thr Lys Leu Asp Gly

165

170

175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
 180 185 190

Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205

Leu Asn Thr Asn
 210

<210> 69

<211> 212

<212> PRT

<213> *Bacillus* sp.

<400> 69

Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
 1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
 20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Asn Asn Leu
 65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
 85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Val Thr Gly Lys Ala
 130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
 180 185 190

Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205

Leu Asn Thr Asn
 210

<210> 70
<211> 212
<212> PRT
<213> *Bacillus* sp.

<400> 70
Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Ser Asp Lys Thr Gly Asn Asn Leu
65 70 75 80

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
115 120 125

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Val Thr Gly Lys Ala
130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
145 150 155 160

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
165 170 175

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
180 185 190

Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
195 200 205

Leu Asn Thr Asn
210

<210> 71
<211> 212
<212> PRT
<213> *Bacillus* sp.

<400> 71
Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 35 40 45

 Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

 Asp Lys Leu Tyr Ala Val Asp Phe Lys Asp Lys Thr Gly Asn Asn Arg
 65 70 75 80

 Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val Leu Asp Lys
 85 90 95

 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110

 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp Lys Ile Glu
 115 120 125

 Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser Ser Arg Ala
 130 135 140

 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 145 150 155 160

 Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg Leu Ile Gly
 165 170 175

 Ala Arg Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Thr
 180 185 190

 Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205

 Leu Asn Thr Asn
 210

<210> 72
 <211> 212
 <212> PRT
 <213> *Bacillus* sp.

<400> 72
 Met Lys Phe Val Lys Arg Arg Ile Leu Ala Leu Val Thr Ile Leu Met
 1 5 10 15

 Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
 20 25 30

 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 35 40 45

 Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

 Asp Lys Leu Tyr Ala Val Asp Phe Ile Asp Lys Thr Gly Asn Asn Arg
 65 70 75 80

 Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val Leu Asp Lys
 85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110
 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp Lys Ile Glu
 115 120 125
 Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser Ser Arg Ala
 130 135 140
 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 145 150 155 160
 Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg Leu Ile Gly
 165 170 175
 Ala Arg Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Thr
 180 185 190
 Ser Ser Leu Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly Gly
 195 200 205
 Gln Asn Thr Asn
 210

<210> 73
 <211> 215
 <212> PRT
 <213> *Bacillus* sp.
 <400> 73
 Met Lys Val Ile Phe Val Lys Lys Arg Ser Leu Gln Ile Leu Val Ala
 1 5 10 15
 Leu Ala Leu Val Ile Gly Ser Met Ala Phe Ile Gln Pro Lys Glu Ile
 20 25 30
 Lys Ala Ala Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly
 35 40 45
 Ala Ser Tyr Asn Phe Ala Ser Ile Lys Ser Tyr Leu Val Asn Gln Gly
 50 55 60
 Trp Asp Arg Asn Gln Leu Phe Ala Ile Asp Phe Ile Asp Lys Thr Gly
 65 70 75 80
 Asn Asn Arg Asn Asn Gly Pro Arg Leu Ser Arg Phe Val Lys Asp Val
 85 90 95
 Leu Asp Lys Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met
 100 105 110
 Gly Gly Ala Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp
 115 120 125
 Lys Ile Glu Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser
 130 135 140
 Leu Arg Ala Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr
 145 150 155 160

Ser Val Tyr Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg
 165 170 175
 Leu Thr Gly Ala Arg Asn Val Leu Ile His Gly Val Gly His Ile Gly
 180 185 190
 Leu Leu Thr Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn
 195 200 205
 Gly Gly Gly Leu Asn Thr Asn
 210 215

<210> 74
 <211> 213
 <212> PRT
 <213> *Bacillus* sp.

<400> 74
 Met Lys Phe Val Lys Arg Arg Ile Ile Ala Leu Val Thr Ile Leu Met
 1 5 10 15

Leu Ser Val Thr Ser Leu Phe Ala Leu Gln Pro Ser Ala Lys Ala Ala
 20 25 30

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 35 40 45

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 50 55 60

Asp Lys Leu Tyr Ala Val Asp Phe Arg Asp Lys Thr Gly Asn Asn Arg
 65 70 75 80

Asn Asn Gly Pro Arg Leu Ser Lys Phe Val Lys Asp Val Leu Asp Lys
 85 90 95

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 100 105 110

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp Lys Ile Glu
 115 120 125

Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser Ser Arg Ala
 130 135 140

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 145 150 155 160

Lys Leu Ser Arg Ser His Cys Arg Gln Gln Ser Leu Ser Phe Asn Trp
 165 170 175

Leu Gln Glu Thr Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu
 180 185 190

Thr Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly
 195 200 205

Gly Leu Asn Thr Asn
 210

<210> 75
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 75
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Thr Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Leu Asn Thr Asn
180

<210> 76
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 76
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

 Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Asp Val Leu Asp Lys
 50 55 60

 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95

 Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
 100 105 110

 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 115 120 125

 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

 Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

 Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175

 Leu Asn Thr Asn
 180

<210> 77
 <211> 180
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 77
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

 Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

 Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Arg Thr Gly Thr Asn Tyr
 35 40 45

 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
 50 55 60

 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Gly Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Leu Asn Thr Asn
180

<210> 78

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 78

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Gly Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly

165

170

175

Leu Asn Thr Asn
180

<210> 79
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 79
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Ile Gly Gly Ala Asn Gly Leu Val Ser Ser Arg Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
115 120 125

Ser Ser Ala Asp Leu Ile Val Val Asn Ser Leu Ser Arg Leu Ile Gly
130 135 140

Ala Arg Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Thr
145 150 155 160

Ser Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 80
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 80
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
 1 5 10 15

 Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

 Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 50 55 60

 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95

 Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Arg Ala
 100 105 110

 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 115 120 125

 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

 Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

 Asn Ser Gln Val Lys Gly Tyr Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175

 Leu Asn Thr Asn
 180

<210> 81
 <211> 180
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 81
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

 Ser Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

 Gly Lys Leu Tyr Pro Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80
 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95
 Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
 100 105 110
 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 115 120 125
 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140
 Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160
 Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175
 Leu Asn Thr Asn
 180

<210> 82
 <211> 180
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 82
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15
 Ser Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30
 Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45
 Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 50 55 60
 Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80
 Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95
 Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
 100 105 110
 Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 115 120 125
 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Leu Asn Thr Asn
180

<210> 83

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 83

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
1 5 10 15

Ser Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
145 150 155 160

Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 84

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 84

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
1 5 10 15

Ser Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Thr Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 85

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 85

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Thr Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr

35

40

45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Val Thr Gly Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Ala Ser Val Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Leu Asn Thr Asn
180

<210> 86

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 86

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Arg Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Arg Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 115 120 125
 Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140
 Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Tyr
 145 150 155 160
 Ser Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175
 Leu Asn Thr Asn
 180

<210> 87
 <211> 180
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 87
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

Asn Phe Ala Gly Ile Arg Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
 85 90 95

Asn Val Val Thr Leu Gly Gly Thr Asn Arg Leu Thr Thr Ser Arg Ala
 100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175

Leu Asn Thr Asn
 180

<210> 88
 <211> 180
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 88
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

Asp Lys Pro Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Lys
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
 85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
 100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
 115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 165 170 175

Leu Asn Thr Asn
 180

<210> 89
 <211> 180
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 89
 Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

Asn	Phe	Ala	Gly	Ile	Lys	Ser	Tyr	Leu	Val	Ser	Gln	Gly	Trp	Pro	Arg
20														30	
Asp	Lys	Leu	Tyr	Ala	Val	Asp	Phe	Trp	Asp	Lys	Thr	Gly	Thr	Asn	Tyr
35														45	
Asn	Asn	Gly	Pro	Val	Leu	Ser	Arg	Phe	Val	Gln	Lys	Val	Leu	Asp	Glu
50														60	
Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala
65														80	
Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Val	Glu
85														95	
Ser	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Leu	Val	Thr	Gly	Lys	Ala
100														110	
Leu	Pro	Gly	Thr	Asp	Pro	Asn	Gln	Lys	Ile	Leu	Tyr	Thr	Ser	Ile	Tyr
115														125	
Ser	Ser	Ala	Asp	Met	Ile	Val	Met	Asn	Tyr	Leu	Ser	Lys	Leu	Asp	Gly
130														140	
Ala	Lys	Asn	Val	Gln	Ile	His	Gly	Val	Gly	His	Ile	Gly	Leu	Leu	Met
145														160	
Asn	Ser	Gln	Val	Asn	Ser	Leu	Ile	Lys	Glu	Gly	Leu	Asn	Gly	Gly	
165														175	
His	Asn	Thr	Asn												
180															

<210> 90

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 90

Glu	His	Asn	Pro	Val	Val	Met	Val	His	Gly	Ile	Gly	Gly	Ala	Ser	Phe
1														15	

Ser	Phe	Ala	Gly	Ile	Arg	Ser	Tyr	Leu	Val	Ser	Gln	Gly	Trp	Pro	Arg
20														30	

Asp	Lys	Leu	Tyr	Ala	Val	Asp	Phe	Trp	Asp	Lys	Thr	Gly	Thr	Asn	Tyr
35														45	

Asn	Asn	Gly	Pro	Val	Leu	Ser	Arg	Phe	Val	Gln	Lys	Val	Leu	Asp	Glu
50														60	

Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala
65														80	

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu

85

90

95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Gly Lys Ala
 100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

Asn Ser Gln Val Asn Arg Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
 165 170 175

His Asn Thr Asn
 180

<210> 91

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 91

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

Ser Phe Ala Gly Ile Arg Ser Tyr Leu Val Ser Gln Gly Trp Pro Arg
 20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala Tyr Ser Met Gly Gly Ala
 65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
 85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Gly Lys Ala
 100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

Asn Ser Gln Val Asn Arg Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 92
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 92
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Ser Phe Ala Gly Ile Arg Ser Tyr Leu Val Ser Gln Gly Trp Pro Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Gly
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Gly Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Arg Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 93
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

peptide

<400> 93

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Ser Phe Ala Gly Ile Arg Ser Tyr Leu Val Ser Gln Gly Trp Pro Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Gly Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Arg Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 94

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 94

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Thr Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 95
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 95
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Ser Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Ser Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Val Val Met Asn Tyr Leu Ser Lys Leu Asp Gly

B
Cont

130

135

140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 96

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 96

Lys His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Tyr
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Ser Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Leu Asn Thr Asn
180

<210> 97

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 97

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Glu Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Ala Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Leu Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn
180

31
cont

<210> 98

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 98

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Arg Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 99
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

B
1
Cont
<400> 99
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Arg Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

His Asn Thr Asn
180

<210> 100

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 100

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Arg Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Cys Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn

<210> 101

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 101

Glu	His	Asn	Pro	Val	Val	Met	Val	His	Gly	Ile	Gly	Gly	Ala	Ser	Phe
1				5				10						15	

Asn	Phe	Ala	Gly	Ile	Lys	Ser	Tyr	Leu	Val	Ser	Gln	Gly	Trp	Ser	Arg
				20				25				30			

Asp	Lys	Leu	Tyr	Ala	Val	Asp	Phe	Lys	Asp	Lys	Thr	Gly	Thr	Asn	Tyr
	35				40						45				

Asn	Asn	Gly	Pro	Val	Leu	Ser	Arg	Phe	Val	Lys	Lys	Val	Leu	Asp	Glu
	50				55					60					

Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala
	65				70				75			80			

Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Ile	Glu
				85				90				95			

Asn	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Ser	Thr	Thr	Ser	Lys	Ala
	100				105						110				

Leu	Pro	Gly	Thr	Asp	Pro	Asn	Gln	Lys	Ile	Leu	Tyr	Thr	Ser	Val	Tyr
	115				120					125					

Ser	Ser	Ala	Asp	Met	Ile	Val	Met	Asn	Tyr	Leu	Ser	Lys	Leu	Asp	Gly
	130				135					140					

Ala	Lys	Asn	Val	Gln	Ile	His	Gly	Val	Gly	His	Ile	Gly	Leu	Leu	Met
	145			150					155			160			

Asn	Ser	Gln	Val	Asn	Ser	Leu	Ile	Lys	Glu	Gly	Leu	Asn	Gly	Gly	Gly
	165				170						175				

Leu	Asn	Thr	Asn												
	180														

<210> 102

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 102

Glu	His	Asn	Pro	Val	Val	Met	Val	His	Gly	Ile	Gly	Gly	Ala	Ser	Phe
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1

5

10

15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
 35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asp Lys Ile Glu
 85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
 100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Val Tyr
 115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
 130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
 145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
 165 170 175

Gln Asn Thr Asn
 180

<210> 103

<211> 180

<212> PRT

<213> Artificial Sequence

B1
Cont

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 103

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
 1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
 20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Gly Lys Thr Gly Thr Asn Tyr
 35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
 50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
 65 70 75 80

Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Ile	Glu
					85				90				95		
Asn	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Ser	Thr	Thr	Ser	Lys	Ala
				100				105				110			
Leu	Pro	Gly	Thr	Asp	Pro	Asn	Gln	Lys	Ile	Leu	Tyr	Thr	Ser	Ile	Tyr
	115				120						125				
Ser	Ser	Ala	Asp	Met	Ile	Val	Met	Asn	Tyr	Leu	Ser	Lys	Leu	Asp	Gly
	130				135						140				
Ala	Lys	Asn	Val	Gln	Ile	His	Gly	Val	Gly	His	Ile	Gly	Leu	Leu	Met
	145			150					155				160		
Asn	Ser	Gln	Val	Asn	Ser	Leu	Ile	Lys	Glu	Gly	Leu	Asn	Gly	Gly	Gly
				165				170				175			
Gln	Asn	Thr	Asn												
				180											

<210> 104

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 104

Glu	His	Asn	Pro	Val	Val	Met	Val	His	Gly	Ile	Gly	Gly	Ala	Ser	Phe
1				5				10					15		

Asn	Phe	Ala	Gly	Ile	Lys	Ser	Tyr	Leu	Val	Ser	Gln	Gly	Trp	Ser	Arg
				20				25					30		

Gly	Lys	Leu	Tyr	Ala	Val	Asp	Phe	Trp	Asp	Lys	Thr	Gly	Thr	Asn	Tyr
				35			40				45				

Asn	Asn	Gly	Pro	Val	Leu	Ser	Arg	Phe	Val	Lys	Lys	Val	Leu	Asp	Glu
				50			55				60				

Thr	Gly	Ala	Lys	Lys	Val	Asp	Ile	Val	Ala	His	Ser	Met	Gly	Gly	Ala
				65			70			75			80		

Asn	Thr	Leu	Tyr	Tyr	Ile	Lys	Asn	Leu	Asp	Gly	Gly	Asn	Lys	Ile	Glu
					85				90				95		

Asn	Val	Val	Thr	Leu	Gly	Gly	Ala	Asn	Arg	Ser	Thr	Thr	Ser	Lys	Ala
				100				105				110			

Leu	Pro	Gly	Thr	Asp	Pro	Asn	Gln	Lys	Ile	Leu	Tyr	Thr	Ser	Ile	Tyr
	115				120						125				

Ser	Ser	Ala	Asp	Met	Ile	Val	Met	Asn	Tyr	Leu	Ser	Lys	Leu	Asp	Gly
				130			135				140				

Ala	Lys	Asn	Val	Gln	Ile	His	Gly	Val	Gly	His	Ile	Gly	Leu	Leu	Met
				145			150			155			160		

B
Cont

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 105
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 105
Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Lys Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Lys Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 106
<211> 180
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 106

Lys His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Asp Glu Leu Tyr Ala Val Asp Phe Trp Asp Glu Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Gln Asn Thr Asn
180

3
|
<210> 107

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 107

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Asp Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu

50

55

60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Val Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 108

<211> 180

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 108

Glu His Asn Pro Val Val Met Val His Gly Ile Gly Gly Ala Ser Phe
1 5 10 15

Asn Phe Ala Gly Ile Lys Ser Tyr Leu Val Ser Gln Gly Trp Ser Arg
20 25 30

Gly Lys Leu Tyr Ala Val Asp Phe Trp Asp Lys Thr Gly Thr Asn Tyr
35 40 45

Asn Asn Gly Pro Val Leu Ser Arg Phe Val Gln Lys Val Leu Asp Glu
50 55 60

Thr Gly Ala Lys Lys Val Asp Ile Val Ala His Ser Met Gly Gly Ala
65 70 75 80

Asn Thr Leu Tyr Tyr Ile Lys Asn Leu Asp Gly Gly Asn Lys Ile Glu
85 90 95

Asn Val Val Thr Leu Gly Gly Ala Asn Arg Ser Thr Thr Ser Lys Ala
100 105 110

Leu Pro Gly Thr Asp Pro Asn Gln Lys Ile Leu Tyr Thr Ser Ile Tyr
115 120 125

Ser Ser Ala Asp Met Ile Val Met Asn Tyr Leu Ser Lys Leu Asp Gly
130 135 140

Ala Lys Asn Val Gln Ile His Gly Val Gly His Ile Gly Leu Leu Met
145 150 155 160

Asn Ser Gln Val Asn Ser Leu Ile Lys Glu Gly Leu Asn Gly Gly Gly
165 170 175

Gln Asn Thr Asn
180

<210> 109

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 109

Asp His Asn Pro Val Ile Met Val His Gly Met Gly Gly Ala Ser Tyr
1 5 10 15

Asn Phe Ala Gly
20

<210> 110

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 110

Asp His Gln Pro Val Val Val Val His Gly Ile Gly Gly Ser Ser Phe
1 5 10 15

Asn Phe Ser Gly
20

<210> 111

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 111

gagcataacc ccgtg

15